Samson Scientific

User Manual

SSA-20 - CO_2 Incubator Analyser

Introduction

The SSA-20 is the new handheld CO_2 analyser specially designed by Samson Scientific to measure, verify and validate the CO_2 levels on CO_2 Incubators. The SSA-20 offers the user an easy to use and accurate CO2 analysis tool with the backup of our excellent after sales support package.

Easy to use

Fast and intuitive touch screen driven user interface.

It's fast

Solid state sensor technology with extremely fast start time and minimal warm up mean the SSA-20 can practically complete its full check and measurement cycle before other Analysers have even got the splash screen out of the way.

The SSA-20 CO_2 Analyser is extremely easy to use but it is essential that these Operating Instructions are read prior to use.

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Getting Started

Case contents

1. SSA-20 CO2 Analyser
2. 1 metre of sample tubing with filter and 1 x Spare Filter
3. User Manual
4. Mains charger with UK AC head
5. USB A Male to Right Angle Mini USB
6. US, EU and AU Mains charger heads

Getting Started

Device Layout

1. On/Off Button
2. Gas Inlet Luer
3. Touch screen
4. USB/ charging port
5. Tilt stand
6. Gas outlet

Getting Started

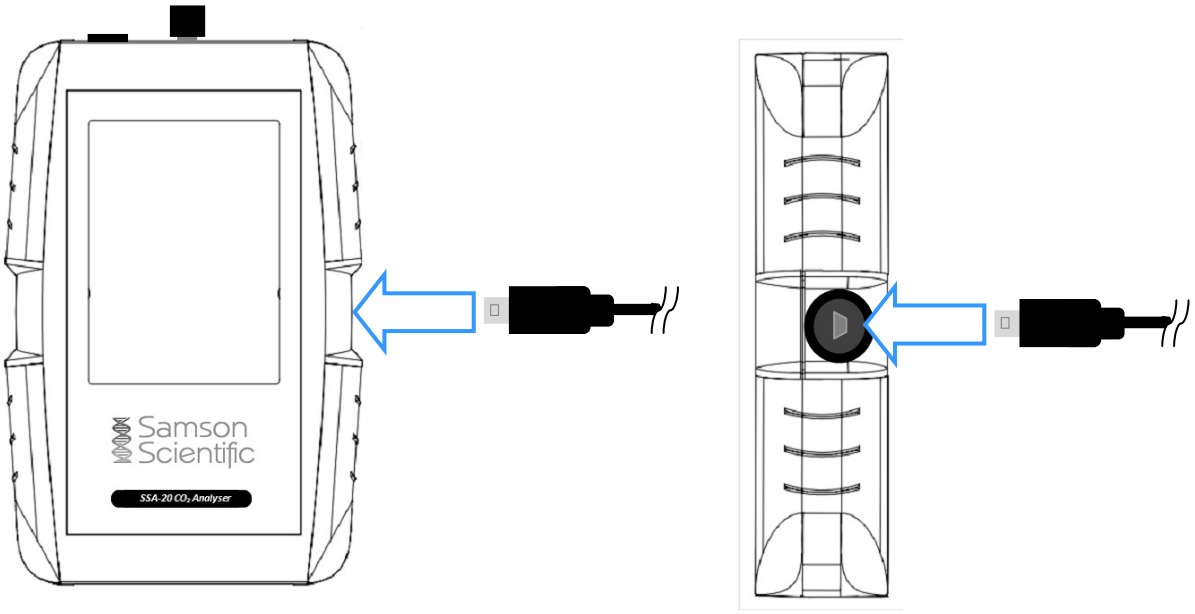
Charging the battery

Use the charger to charge the battery before using it for the first time. A computer can be also used to charge the device by connecting them via the USB cable.
NOTE: The device should always be switched On while charging.
The device can be used while it is charging, but it may take longer to fully charge the battery.

IMPORTANT NOTE: Use only Samson Scientific approved chargers, batteries, and cables. Unapproved chargers or cables can cause the battery to explode or damage the device.

Charging with the charger

Connect the USB cable to the USB power adaptor and then plug the end of the USB cable into the SSA-20 USB port.



IMPORTANT NOTE: Connecting the charger improperly may cause serious damage to the device. Any damage caused by misuse is not covered by the warranty.

Checking the battery charge status

When charging the device the battery charge status icon will appear in the middle of the screen:

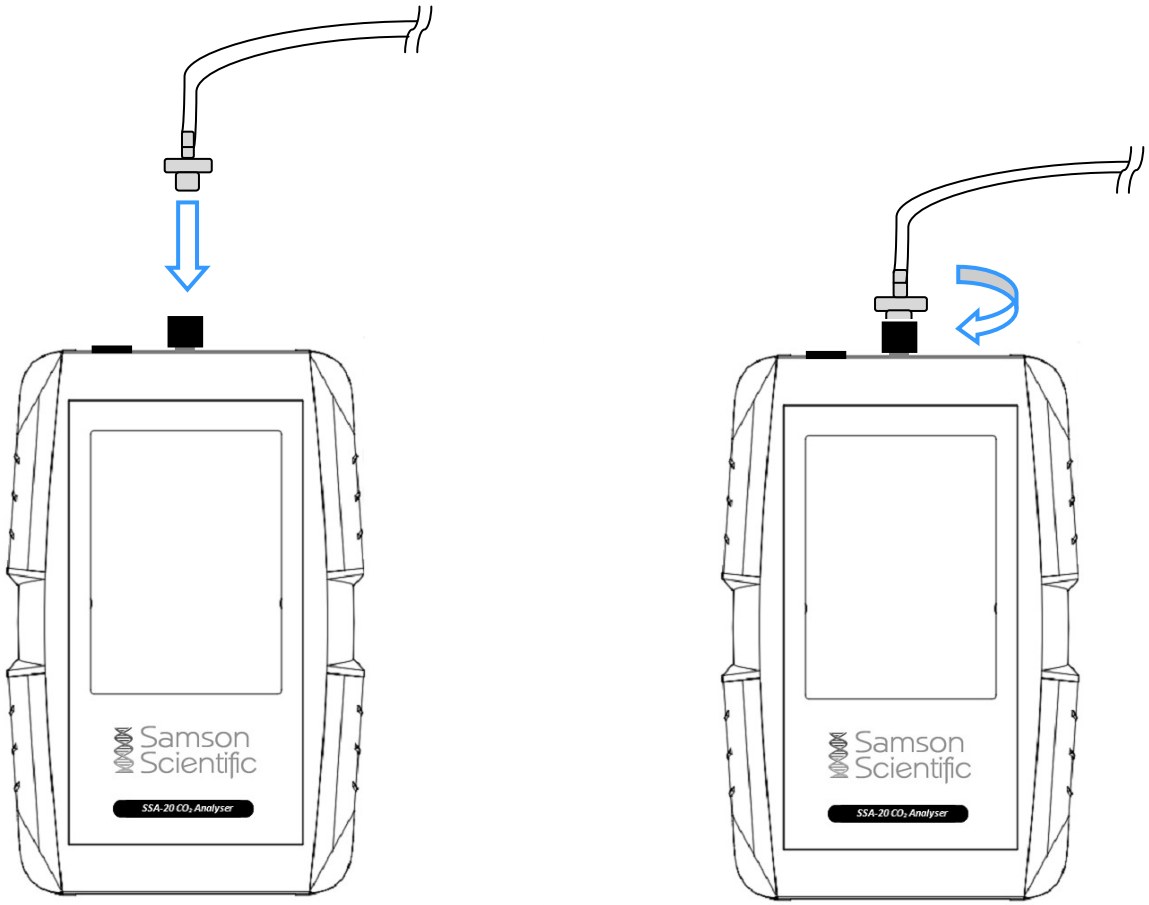
After fully charging, disconnect the device from the charger.

Getting Started

Connecting the tubing and filter

IMPORTANT NOTE: Always ensure that the filter provided is used.

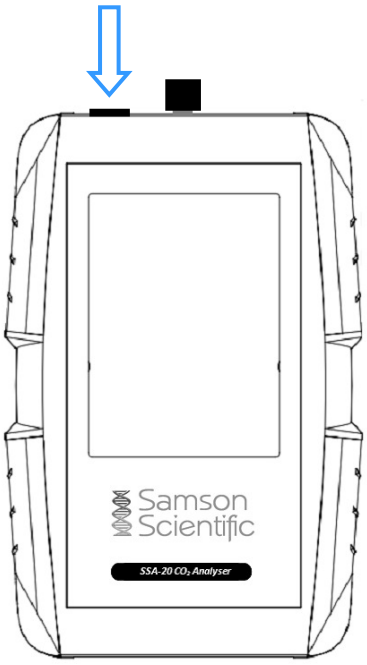
Connect the filter and tube to the gas inlet luer connector. Push the filter onto the luer and twist clockwise to lock.



Operation

Switching the unit ON/OFF

Press the ⏻ button. The unit is now switched on.



After being turned on, the SSA-20 will start up within 6 seconds and the current CO_2 measured value will be displayed.
To turn the SSA-20 Analyser off, press the ⏻ button again.

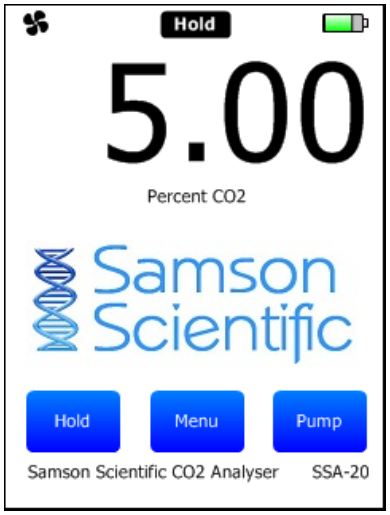
Indicator icons

The icons displayed on the screen provide information about the status of the device.
The icons listed in the table below are most common.

Icon	Meaning
	Battery power level
	Pump running
HOLD	Measurement ‘Hold’ enabled
	Battery level low connect charger

Home Screen layout

The Home screen of the SSA-20 is the starting point to access all of the device's features. It displays the currently measured "PERCENT CO2" level, indicator icons, Hold, Menu and Pump buttons.

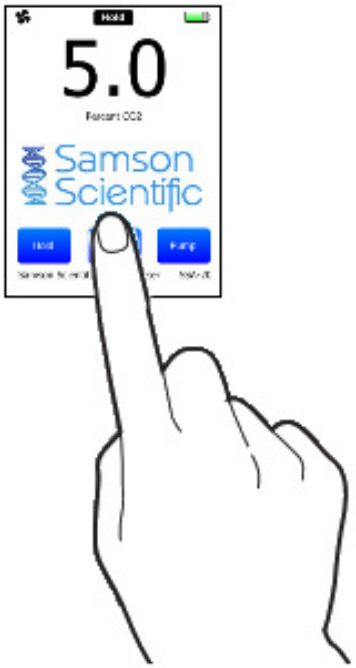


Using the touch screen

IMPORTANT NOTE: Use only fingers to use the touch screen.

- Do not allow the touch screen to come into contact with other electrical devices as electrostatic discharges could cause the touch screen to malfunction.
- Do not allow the touch screen to come into contact with water. The touch screen may malfunction in humid conditions or when exposed to water.
- To avoid damaging the touch screen, do not tap it with anything sharp or apply excessive pressure to it with your fingertips.

To operate any of the on-screen buttons, tap it with a finger.



Operation

Sampling/Measuring Mode

IMPORTANT NOTE: Always ensure that the filters provided are used and replaced regularly

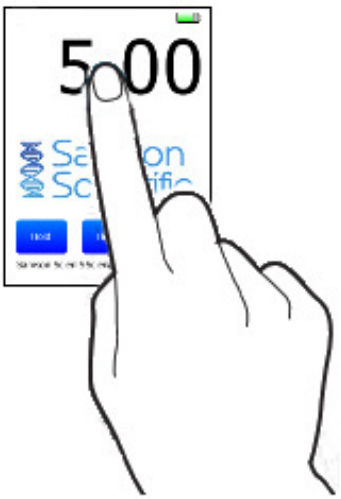
IMPORTANT NOTE: Before sampling CO2 for the first time perform a “Calibrate in Air” by following the Calibration procedure.

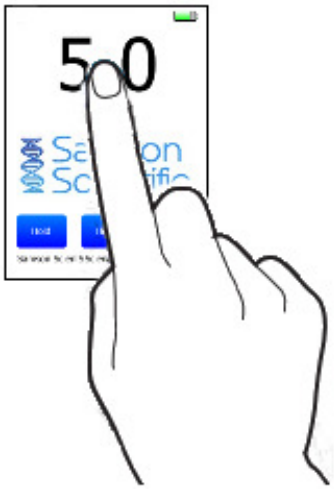
IMPORTANT NOTE: We recommend that the SSA-20 is zeroed in air at the beginning of each day of use.

To turn on the integral gas pump, briefly press the Pump button.
To turn off the pump, again briefly press the Pump button.

Resolution adjustment

To adjust the measurement resolution from 1 decimal place to 2 decimal places tap the “Percent CO2” area of the screen.





Measurement procedure

When sampling the CO2 level of a CO2 Incubator, connect the SSA-20 tubing to the sample port and press the Pump button to turn on the metering gas pump.
A sample of the atmosphere from the CO2 Incubator will then be drawn in through the tube and the “PERCENT CO2” reading will start to change as the gas to be measured is drawn into the unit.
Monitor the reading until it stabilises. This will typically take around 90 seconds.
Take note of the reading and press the Pump button to turn off the metering gas pump.

IMPORTANT NOTE: As the atmosphere in an incubator is normally kept at a high humidity we recommend that you DO NOT leave the analyser sampling on a humidified incubator for longer than 2 minutes. After sampling on a humidified Incubator for a long period we recommend that you continue to run the analyser pump in air for 30 seconds to flush out any humidity which could have built up inside the sensor.

Calibration

Zero Calibration
The SSA-20 can be calibrated in clean outside air or by using Nitrogen.

Calibrate in Air
IMPORTANT NOTE: It is essential to ensure that the unit is in clean air in an outdoor environment before attempting an air calibration and ensure your exhaled breath does not affect the procedure. Failure to adhere to these guidelines could result in an incorrect calibration result.

From the home screen press Menu
Press Calibrate in Air and follow the on screen instructions.
Press the Pump button and run the pump for 1 minute. When the reading has stabilised press Calibrate and the SAA-20 will adjust the level to atmospheric CO2 0.04%.
Press the Pump button to switch off the pump.
Press the Back button two times to return to the home screen.

Calibrate in Nitrogen

From the home screen press Menu
Press Calibrate in Nitrogen and follow the on screen instructions.
Connect a Nitrogen source with pressure set no higher than 0.3L/min and press the Pump button.
Run the pump for 90 seconds and when the reading has stabilised press Calibrate and the SAA-20 will adjust the level to CO2 0.00%.
Press the Pump button to switch off the pump.
Press the Back button two times to return to the home screen.

Reference to Calibrated Gas
IMPORTANT NOTE: It is essential to ensure that the unit is in clean air in an outdoor environment before attempting an air calibration and ensure your exhaled breath does not affect the procedure. Failure to adhere to these guidelines could result in an incorrect calibration result.

From the home screen press Menu
Press Reference to Calibrated Gas and follow the on screen instructions.
Connect a calibration gas supply with pressure set no higher than 0.3L/min and press the Pump button.
Enter the value of the calibration gas cylinder by using the Down and Up buttons. The default value is 5.00 but this value can be adjusted to any level from 0-21%.
Run the pump for 90 seconds and when the reading has stabilised press Calibrate and the SAA-20 will adjust the measured level to CO2 5.00%.
Press the Pump button to switch off the pump.
Press the Back button two times to return to the home screen.

Service, Factory Calibration, Technical Support & Warranty

Servicing

There are no user-serviceable parts inside the SSA-20 CO2 Analyser.
Unauthorised removal of the back of the unit will invalidate the warranty.

Your SSA-20 CO_2 analyser should be regularly calibration checked - a range of calibration check gases can be supplied by Samson Scientific Ltd and we recommend the analyser is serviced at regular intervals (twelve months).

The inline filter, connecting to the gas inlet port must be replaced when the PTFE membrane becomes contaminated or saturated with moisture.
New filters are available from Samson Scientific.

Getting Technical Support

If you have questions about the use or features of your SSA-20 CO2 Analyser or have any issue, please call +44(0)845 094 9743 or email enquiries@samsonscientific.com for technical support.
When you call or contact us for support, please include as much information as you can along with the Serial Number of your unit. This will allow us to help you more quickly.

Warranty

Samson Scientific warrants this unit to be free of defects in materials and workmanship for a period of 12 months from date of purchase.
If the unit malfunctions, it must be returned to the factory for evaluation. Samson Scientific's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by Samson Scientific, if the unit is found to be defective, it will be repaired or replaced at no charge.
Samson Scientific's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification.
This WARRANTY is VOID if the unit shows any evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion, current, heat, moisture, vibration, improper specification, misapplication, misuse or other operating conditions outside of Samson Scientific's control.